

University of Dundee

Patients' Perceptions of Perioperative Quality of Care in Relation to Self-rated Health

Forsberg, Angelica; Vikman, Irene; Wälivaara, Britt Marie; Rattray, Janice; Engström, Åsa

Published in:
Journal of Perianesthesia Nursing

DOI:
[10.1016/j.jopan.2018.01.007](https://doi.org/10.1016/j.jopan.2018.01.007)

Publication date:
2018

Document Version
Peer reviewed version

[Link to publication in Discovery Research Portal](#)

Citation for published version (APA):
Forsberg, A., Vikman, I., Wälivaara, B. M., Rattray, J., & Engström, Å. (2018). Patients' Perceptions of Perioperative Quality of Care in Relation to Self-rated Health. *Journal of Perianesthesia Nursing*, 33(6), 834-843. <https://doi.org/10.1016/j.jopan.2018.01.007>

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1 Patients' perceptions of perioperative quality of care in relation to self-rated health

2 Abstract

3 **Purpose:** To (1) explore associations between patient and perioperative factors
4 and dimensions of quality of care, and (2) to explore perioperative patients' self-rated
5 physical health in relation to information, encouragement and participation.

6 **Methods:** The present study was cross-sectional with a quantitative approach (n = 170
7 participants). Analyses were performed using quantitative techniques, but the collected data
8 were qualitative when the patients' subjective perceptions were quantified. Multiple logistic
9 regressions and Mann-Whitney U-tests were used to analyze the data.

10 **Finding:** The factor associated with patients' satisfaction within the dimension of "identity-
11 oriented approach of the caregivers," including the quality of information, encouragement
12 and participation, was self-estimated physical health. Those who estimated their physical
13 health as being good were generally more satisfied. Patients who rated their physical health
14 as being less than good were significantly less satisfied with the information provided prior to
15 surgery about their stay in the PACU.

16 **Conclusions:** Nurses should chart patients' estimations of their physical health initially in
17 care in order to provide reinforced support for patients who estimate their physical health is
18 less than good. Prior to surgery, patients who have estimated their physical health as being
19 less than good should be given realistic information about their stay in the PACU— that they
20 will be in a PACU postsurgery, what that stay means, and why it is necessary.

21 **Keywords:** Information, Participation, Perioperative, Nursing Care, Quality of Care,
22 Quantitative Design, Satisfaction.

Implications for Clinical Practice

- Nurses can chart patients' estimations of their physical health initially in care in order to provide reinforced support for patients who estimate that their physical health is less than good.
- Prior to surgery, patients who have estimated their physical health as being less than good should be given realistic information about their stay in the post-anaesthesia care unit (PACU)—that they will be in a PACU post-surgery, what that stay means and why it is necessary.
- During post-surgery, patients should clearly and repeatedly be informed about which PACU nurse is responsible for their care, and, if possible, the PACU nurse should visit patients with less than good physical health prior to surgery.

Introduction

Quality of care can be viewed as patients' perceptions of satisfaction concerning an existing care structure that is more external to the individual, although the patient is naturally a part of this context.¹ Regardless of gender, age and social status, patients should be completely informed of their rights to both autonomy and participation in their care.² During the perioperative period, patients are usually in a vulnerable situation wherein several factors interact in a complex way. Such factors may comprise causal diagnosis, the nature of the surgery and, not least, patients' own estimation of their physical health status.³ Poor satisfaction with care has been revealed to impair the quality of recovery after surgery.⁴ However, it is essential to chart how these factors are associated with patients' perceptions of perioperative quality in order to overcome weaknesses in the quality of care given.

Background

Patient satisfaction is a conventional indicator of quality of care.^{5,6} Reviews of determinants of patient satisfaction have shown that, regardless of environment, an important factor in addition to the patient-staff relationship is the information provided and the skill of the staff. Across different settings, the evidence⁷⁻¹⁰ shows that the most important sociodemographic predictor of satisfaction is age, with older patients being more satisfied with healthcare services. In addition, healthier patients have shown^{6,7,9} to be generally more satisfied with their care than those with less than good health. In their literature review Heidegger et al¹¹ noted that few validated studies have examined quality of care from the patients' perspective in perioperative care environments. Consistent with Crow et al.,⁷ they revealed that patient satisfaction in perioperative settings correlated to the quality of information and communication. Leinonen et al (2003) showed that patients have indicated satisfaction with their stay in a PACU, while nurses have been less satisfied and occasionally described the

environment as restless and overcrowded. Later, Gunningberg and Idvall¹² found that areas in which quality could be improved in perioperative care beyond communication included trust and environmental factors. Idvall and Berg (2008) revealed that orthopedic patients and general surgical patients had similar and too high ratings of postoperative pain, and concluded that this impacted negatively on the patient satisfaction. Perioperative patients with a better self-estimated physical health status upon admission have reported that they had received better information than patients who estimated their health as being poorer.¹³ Given that the preoperative period can be stressful for patients, giving information is a potentially important aspect of quality care.¹¹ Understanding the patients' information needs and the relationship between these needs and subsequent factors can inform future service delivery. As far as we know, however, few studies have explored patients' perceptions of their perioperative quality, and we found no studies using the Swedish quality from a patient perspective (QPP) model to explore factors associated with patients' perceptions of quality of perioperative care. Subsequently, there is a need to explore in detail which parts of perioperative care need improvement.

Purpose

The purpose was (1) to explore associations between patient and perioperative factors and the dimensions of quality of care and (2) to explore perioperative patients' self-rated physical health in relation to information, encouragement and participation.

METHODS

Design

This study was cross-sectional with a quantitative approach, while the research purpose in this context is to gain quantity knowledge at a group level. Analyses were performed using

quantitative techniques, but the collected data were qualitative when the patients' subjective perceptions were quantified.

Sample

The present study was based on a consecutively selected sample assembled for a doctoral thesis³ in a general central county hospital in Sweden. The thesis aimed to describe patients' experiences of undergoing two specific surgical procedures, describe patients' perceptions of quality of perioperative care in general and explore patients' perceptions of their postoperative recovery. This study is focused on and develops knowledge about perioperative patients' self-rated physical health in relation to quality of care; information, encouragement and participation. The inclusion criteria sought patients who were undergoing a surgical procedure major enough to warrant a stay in the post-anesthesia care unit (PACU), were hospitalized in the ward for a minimum of one day post-surgery, did remember most of the procedure and were cognitively able to complete the questionnaire. Within these criteria, all patients (n = 187) at two general surgical wards and two orthopedic wards were requested to participate, and 170 patients ultimately participated (Table 1).

Insert table 1 about here

Ethical Considerations

Ethical approval was received by the regional ethics review board in Sweden (nr 1230-10). The medical heads of the involved clinics (i.e., the intensive care unit, orthopedic unit and surgical unit) consented to the study. The first author provided oral and written information about participation and the questions. Each patient signed a consent form and was guaranteed confidentiality. The patients were reminded that their participation was voluntary and that declining to participate would not affect their care.

Data Collection

Patient-responsible nurses in the wards identified all patients who met the inclusion criteria from patient ledgers, and the first author questioned patients for participation. The first author next distributed a questionnaire in the ward between one and four days post-surgery and collected the questionnaires after completion. Patients who met the inclusion criteria but had physical limitations and could not complete the questionnaire themselves (n = 70) were assisted. The first author read the questions and possible responses and marked the response chosen by the patient. Patients rated their perceived physical health on a five-point scale from “Very good” to “Very poor.”

Instrument

The concept operationalised in the present study is a model—namely, quality from a patient perspective (QPP), developed by Wilde et al.¹ The concept of QPP preceded the QPP questionnaire used in this study and specifies satisfaction with the following areas: perceptions of information, encouragement, participation, physical care, medical care, care equipment, routines and atmosphere. All of these areas can be divided into four interrelated dimensions: the medical-technical competence of the caregivers, the physical-technical conditions of the care organisation, the identity-orientated approach of caregivers and the sociocultural atmosphere of the care organisation.¹

We used the QPP questionnaire for surgery, which consists of 33 items¹⁴, all listed in Table 2. The QPP questionnaire is widely examined for validity and internal consistency¹⁵⁻¹⁷ with satisfactory results. Every item consists of a positively biased statement (e.g., “I received good information about the surgery prior to surgery”). Responses were given on four-point Likert scales, ranging from “Fully agree” to “Not agree at all.” Participants were told to

respond “Do not remember” or “Not applicable” if they could not recall their experience. Participants who responded ‘not applicable’ or ‘did not remember’ were not included and are reported as internal losses.

Insert table 2 about here

Data Analysis

The analysis of factors associated with dimensions of quality of care was performed via multiple logistic regressions analyses (Table 3). First, a principal component analysis was performed on the actual sample. There was covariance between some groups, such as acute/elective patients versus orthopaedic/general surgery patients. Accordingly, factors with highest variance were chosen, and multiple logistic regressions on the QPP’s dimension levels were performed to investigate impact by gender, age, type of surgery, the American Society of Anaesthesiologists (ASA) physical status classification system and whether patients completed the questionnaire themselves or whether they received assistance and self-estimated physical health. Each dimension in the QPP questionnaire was dichotomised according to “Satisfied” = 0 (“Fully agree” and “Largely agree”) and “Less than satisfied” = 1 (“Partly agree” and “Not agree at all”). To generate two groups for self-estimated physical health, we dichotomised the five-point scale into a two-point one: the responses “Very good” and “Good” were grouped into “Good,” whereas the responses “Neither good nor poor,” “Poor” and “Very poor” were group into “Less than good.” P-values < 0.05 (P) and odds ratio (OR) were used to denote a significant impact.

The analysis in Table 5 was based on results from the logistic multiple regressions analysis, and we selected to further explore the self-estimated physical health related to the dimension “Identity-oriented approach of the caregivers,” including the areas information, participation and encouragement (i.e., Items 1-22; see Table 2). Statistical analyses were performed in the Statistical Package of the Social Sciences version 24 (SPSS Inc., Chicago, IL, USA). Descriptive statistics were used, which are reported as proportions for categorical variables. We used the four-point scales dichotomised into two-point-scales for each item (1-22). Participants who answered “Not applicable” or “Do not remember” were excluded from the analysis. We performed a statistical analysis to gauge differences between groups, and P values of less than 0.05 denoted statistical significance. Mann-Whitney U-tests were used to analyse the data, which were ordinal, using the original four-point scales, not the dichotomised two-point ones.

Insert table 3 about here

FINDING

The multiple logistic regression analysis in Table 3 shows that within the dimensions of physical-technical conditions (Item 29) and socio-cultural atmosphere (Items 30-32), a significant impact emerged regarding whether the surgery was acute or elective. Those who underwent acute surgery procedures were more likely to report a lower satisfaction than the patients who had underwent elective procedures. Moreover, the analyses show that a significant impact occurred depending on the patients’ self-estimated physical health status. Patients who assessed their physical health as being good were more likely to report satisfaction within the dimension of identity-oriented approach of the caregivers (Items 1-22) than those who assessed their physical health as being less than good. The dimension of

identity-oriented approach of the caregivers was greatest, so we selected to further explore this in detail at the item level in Tables 4 and 5.

Insert table 4 about here

Table 4 presents the personal characteristics and perioperative variables distributed among self-estimated good and less-than-good physical health. Proportions indicate that the distribution of gender, age, nature of surgery, ASA classification and hours in the PACU post-surgery was relatively equal among the groups.

The proportions in Table 5 show that, on the whole, participants who reported their physical health as being good were more satisfied than ones who reported their physical health as being less than good. Only three items showed somewhat higher proportions of perceived satisfaction among participants who estimated their health as being less than good, specifically regarding encounters with the anaesthetist and nurses. The proportions moreover indicated that regarding encounters in terms of empathy, respect and commitment, both groups expressed a high extent of satisfaction without any significant differences. Regarding information, the information received prior to surgery about what to expect in the theatre room, about the stay in the PACU and about which nurses were responsible for care in the PACU was all perceived as being less satisfying among participants who deemed their physical health as being less than good. As such, although the other two items mentioned nearly achieved significance, there was barely a significant difference regarding the item “Good information about the stay in the PACU prior to surgery.” Proportions indicated that participants who reported their physical health as being less than good were less satisfied with their opportunities to influence and participate in decisions about their care and a

significant difference was indicated for the item “Good opportunities to influence my body position in the theatre room.”

Insert table 5 about here

DISCUSSION

This study sought to explore associations between patient and perioperative factors and dimensions of quality of care and to explore perioperative patients’ self-rated physical health in relation to information, participation and encouragement. The results showed that the factor associated with patients’ satisfaction within the dimension of identity-oriented approach of the caregivers, including the quality of information, encouragement and participation, was self-estimated physical health. This contrasts with previous research⁸⁻¹⁰ showing that the most important predictor of satisfaction across settings is age. Within the dimension of identity-oriented approach of the caregivers, which was the largest dimension, participants who estimated their physical health as being good were more satisfied than those who reported their physical health as being less than good. Such results are consistent with the findings of previous studies^{6,7,9} conducted in other care settings, which were that good health correlates with perceptions of good care.

Within the dimension of identity-oriented approach of the caregivers, the multiple logistic regression analyses showed an impact on satisfaction, depending on the patients’ self-estimated physical health status, but not on ASA classification (i.e., physical health status) rated prior to surgery by the anaesthetist. The ASA classification is the most common method the world over for risk stratification prior to surgery¹⁸ and is de facto well-studied.¹⁸⁻²⁰ Higher ASA scores (III or more) is a predictor of higher rates of postoperative mortality,^{18,19}

more postoperative complications and slower recovery speed.²¹ However, the ASA classification system has been criticised as vague and far from perfect.¹⁸ Notable in our study was that the proportion of patients rated as representing ASA III or greater (i.e., lower physical health status) by the anaesthetist was somewhat greater in the group who estimated that their physical health was good than in the group who estimated their physical health less than good. However, the ASA classification is only an external assessment of the patients' preoperative physical status.^{22,23} Functional capacity, including the patients' own estimation of physical health and mental fitness, has been shown²³ to be strong predictors of postoperative outcomes. According to Larsson et al.,²⁴ patients' satisfaction can be evaluated as an emotion based on personal and external objective conditions. In that sense, considering satisfaction as an emotion has an intuitive appeal, for patients indeed have feelings or perceptions of satisfaction or dissatisfaction. Summarising, the perception of one's physical health may be subjective and not always correlated with objective measurements of physical disease. Whether the patients estimate their own health differently than the anaesthetist does, the information received about their poor physical status may cause decreased wellbeing during the perioperative period.

In our study, three items regarding encounters with the anaesthetist and nurses showed somewhat higher proportions of satisfaction for patients who estimated their health as being less than good. This is consistent with the results of other studies²⁵⁻²⁷ made in perioperative settings. An explanation for that consistency might be that staff resources are limited and that a patient who appears to be in worse health receives more attention from available staff. Smedley²⁷ described care in the PACU as a situation in which numerous patients at once present multiple risk factors based on their preoperative baseline health status and their specific response to both anaesthetics and the surgical intervention. Subsequently, staff must

prioritise caring for patients who need immediate and extensive attention. However, for patients in good physical health undergoing minor surgical procedures, surgery can be a major life event associated with anxiety, and such patients also need support.²⁵ The proportions in our results indicated that patients who estimated their health as being less than good were less satisfied with their opportunities to influence and participate in decisions about their care, and a significant difference was indicated regarding the item “Good opportunities to influence my body position in the theatre room.” Patients’ experiences in the theatre-room have previously been revealed^{28,29} and have involved experiences of feelings of helplessness, loss of control over decision-making and loss of body control. According to Forsberg et al.,³ the patients’ ability to participate in decisions in their perioperative care thus suggested a correlation between the information that they received with the aim of giving them knowledge about their conditions, treatments and their possible choices; patients stated that they missed such knowledge and that the possibility of their participation was therefore decreased. Patients’ experiences in the theatre-room have involved being in a situation in which one is dependent on the staff’s expert-knowledge.²⁹ Patients have emphasized the importance of obtaining professional information about different options, such as the opportunity to choose the type of anesthetic or their body-position.³

The present study showed that the item “Good information about the stay in the PACU prior to surgery” indicated a significant difference, thereby revealing that patients who estimated their health as being less than good were less satisfied with such information than those who estimated their health as being good. This occurred despite extensive research that emphasises the importance of preoperative information and education.^{30,31} Moreover, the proportions in our study indicated that patients who had estimated that their physical health

was less than good were less satisfied with the information they received about which nurses were responsible for the care in the PACU. According to Suhonen and Leino-Kilpi,³⁰ critically ill patients might be more concerned about their health and survival after surgery and thus might need a greater extent of personal support. In our study, patients were prepared for surgery in the ward and had not met the nurses in the PACU prior to surgery. In exploring nurse-patient relationships in the PACU, Reynolds and Carnwell³² found that PACU nurses met each patient both before and after surgery, which allowed nurses to discern what kind of information each patient warranted and to understand each patient's wishes and needs for support. If possible, there is a good idea that the PACU nurse should visit patients at the wards prior to surgery. We may chart patients' estimations of their physical health and needs for support initially in the care episode to provide reinforced support postoperatively, for those who estimate their physical health is less than good.

Limitations

After surgical procedures patients may have poor recalls of the event, which may complicate explorations of this area. None of the patients in our study received preoperative sedation prior to surgery. The surgical patients had their anesthesia provided mostly with short-acting agents; Propofol and Remifentanyl and/or epidural analgesia. The orthopedic patients often had an intermittent spinal analgesia and stayed awake during the surgery. Mostly of the patients were awake when they arrived to the PACU or short thereafter. Although, the internal loss regarding certain items (Table 5) was considerable, due to that the patients had responded 'did not remember'. This meant that the groups were small. Regarding the issue of whether an adequate sample size gives a statistical test enough power to determine a true negative result, a small sample size might produce a false negative result, known as a type II

error.³³ Subsequently, our interpretation is that the detected differences are true. It is possible, however, that there were additional underlying differences that went undetected.

Several patients (n = 70) could not complete the questionnaire themselves and were assisted by the first author, who read the questions and possible responses, which poses a risk for bias due to the researcher's impact. However, the multiple logistic regressions showed that no effect on perceptions of quality of perioperative care existed according to whether patients completed the questionnaire themselves or received assistance when other variables were taken into account. Moreover, patients in our study may have experienced uncertainty about how their responses might influence their care. Assurances were given that their participation should not affect their care and confidentiality should apply even against health staff.

Dichotomising a validated instrument and creating a new scale could present the risk of misinterpretation. We dichotomised the five-point scale of self-estimated physical health into a two-point scale; the responses "Very good" and "Good" physical health were grouped as "Good physical health," whereas the responses "Neither good nor poor," "Poor" and "Very poor" physical health were grouped as "Less-than-good physical health" in order to create two groups. The response "Neither good nor poor" was neutral, and transferring a neutral response into a biased one was a concern. Unambiguously, however, the interpretation that participants who rated their health as being "Neither good nor poor" indicated less-than-good physical health relative to those who rated their health as being "Very good" or "Good" has to be correct. That most participants estimated their physical health as being very good or good is gratifying, but this meant that the sizes of the groups were unequal. Although it is statistically most efficient if the two groups are equal in size, there are still benefits to studying more individuals; even if additional individuals belong to one of the groups.³³ The internal loss regarding certain items (Table 5) was considerable, which meant that the groups

were small. Regarding the issue of whether an adequate sample size gives a statistical test enough power to determine a true negative result, a small sample size might produce a false negative result, known as a type II error.³³ Subsequently, our interpretation is that the detected differences are true. It is possible, however, that there were additional underlying differences that went undetected.

Conclusion

This study indicates that the factor associated with patients' satisfaction within the dimension of "identity-oriented approach of the caregivers," including the quality of information, encouragement and participation, was self-estimated physical health. Patients who estimated their physical health as being good were more satisfied with the information provided and their opportunities to participate in decisions about their care during the perioperative period, except regarding certain rates of encounters with the anaesthetist and nurses, which showed higher proportions of satisfaction for patients who estimated their health as being less than good. Patients who estimated that their physical health was less than good were significantly less satisfied with the information provided prior to surgery about their stay in the PACU than those who estimated that their physical health was good. Participants who thought that their physical health was less than good were also less satisfied with the information provided about which nurses were responsible for their care in the PACU. Nurses should chart patients' estimations of their physical health initially in care in order to provide reinforced support for patients who estimate their physical health is less than good. Prior to surgery, those patients should be given realistic information about their stay in the PACU—that they will be in a PACU postsurgery, what that stay means, and why it is necessary. Postsurgery, patients should clearly and repeatedly be informed about which PACU nurse is responsible for their care. Better provision of information could prompt an increased wellbeing and

365 additionally, an improved possibility for that group to participate in decisions about their
366 care. That participants' estimation of their own physical health differed from anaesthetists' is
367 noteworthy and warrants further exploration.

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